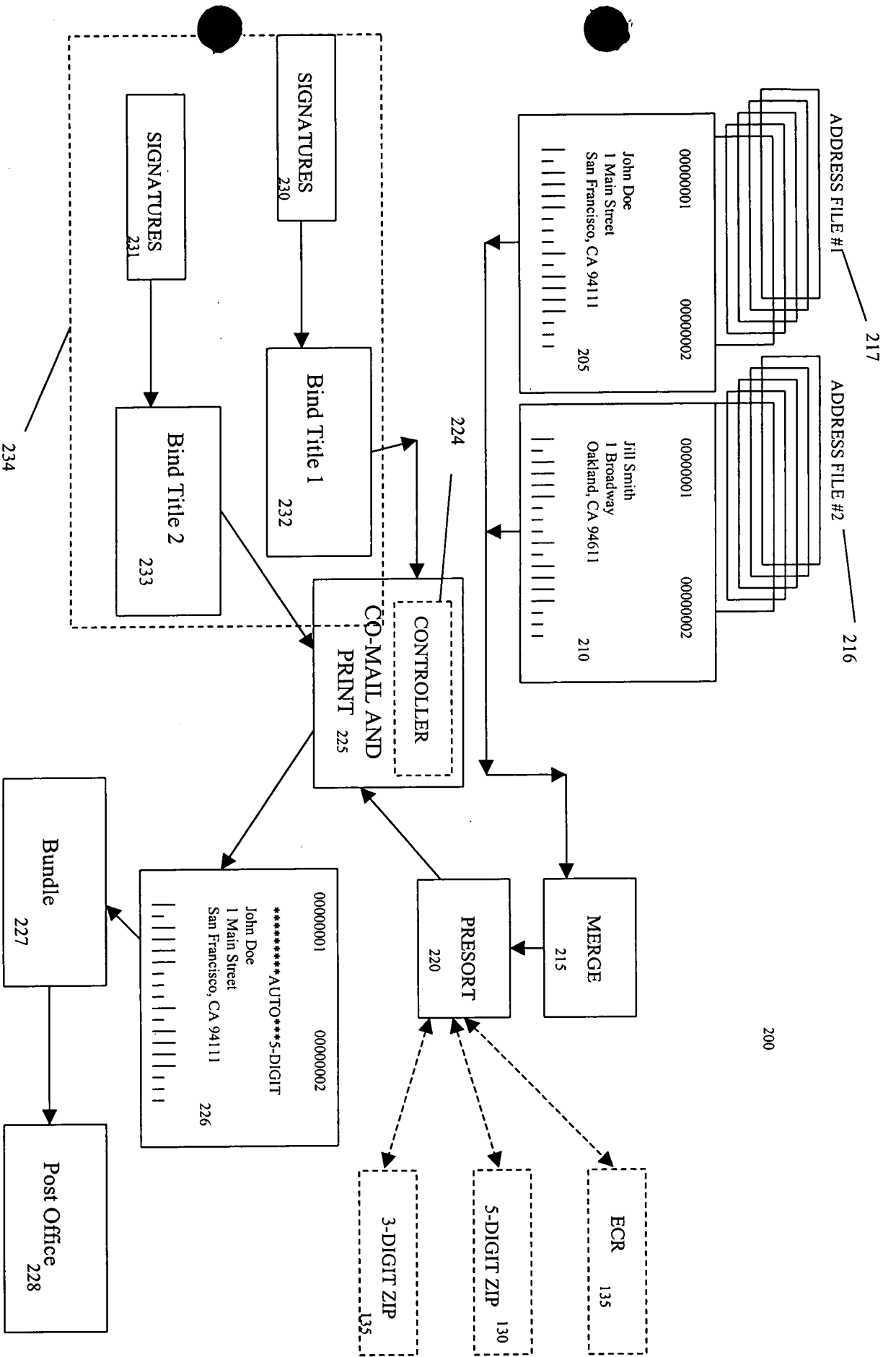


Prior Art FIG. 1

FIG. 1 is a flowchart of a mail processing system. The system includes an address file 101, a presort module 110, a bind and print module 120, a bundle module 135, and a post office 130. The address file 101 provides input to the presort module 110. The presort module 110 outputs to the bind and print module 120 and also outputs to three separate modules: ECR 135, 5-DIGIT ZIP 130, and 3-DIGIT ZIP 135. The bind and print module 120 receives input from a signatures module 115 and outputs to a bundle module 135. The bundle module 135 outputs to the post office 130.



Prior Art FIG. 2

FIG. 2 is a block diagram of a mail processing system in accordance with the present invention.

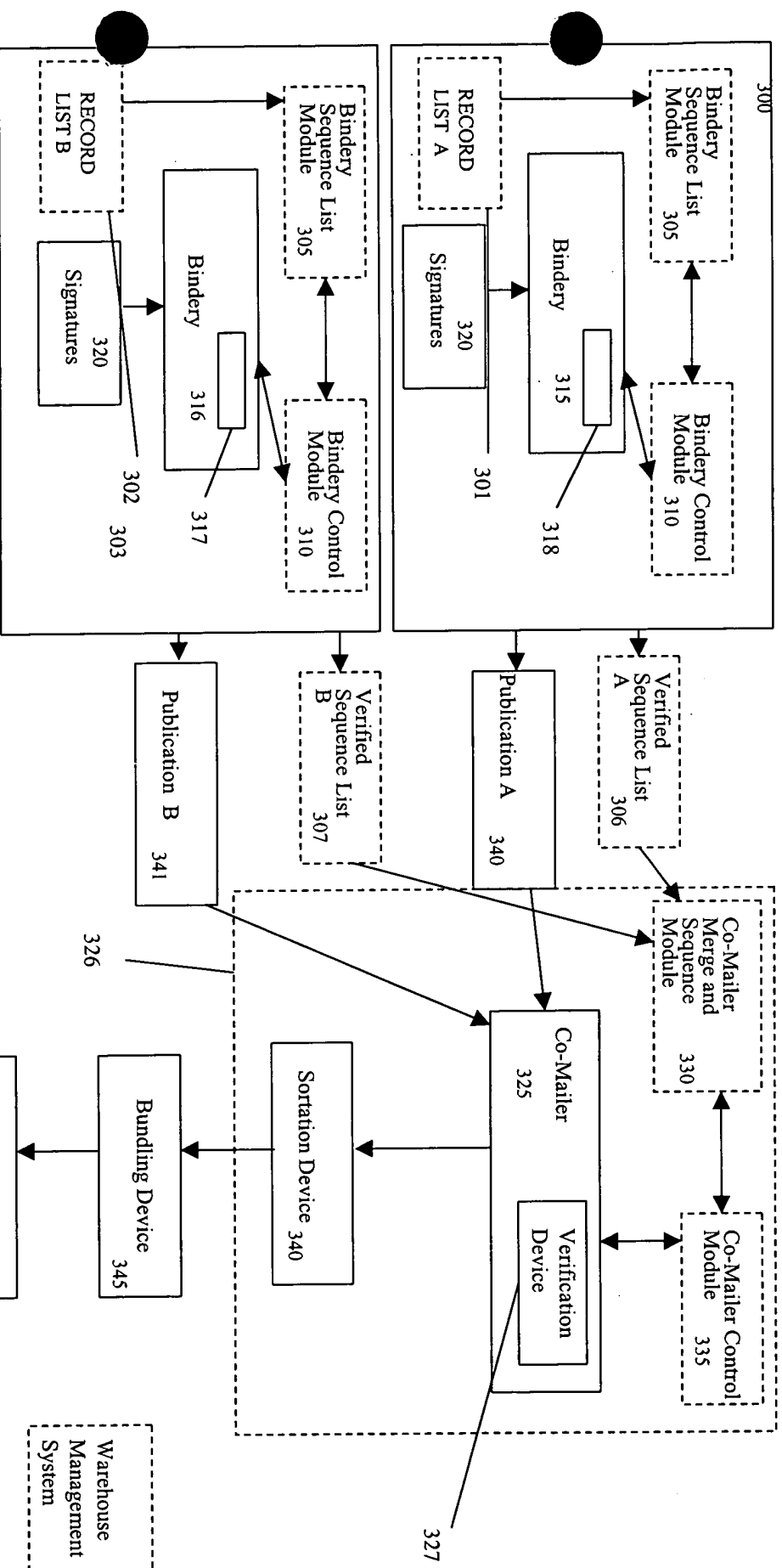


FIG. 3

•  
•  
•  
N

FIG. 3 is a block diagram of a system architecture for document processing.

00000001

John Alpha  
1 First Street  
Atlanta, GA 30015

405

00000001

Jill Beta  
2 Second Street  
Boston, MA 02163

410

00000001

Bob Gamma  
3 Third Street  
Chicago, IL 60602

415

00000001

Kim Delta  
4 Fourth Street  
Detroit, MI 48131

420

00000001

Mike Epsilon  
5 Fifth Street  
Atlanta, GA 30015

425

00000001

Robin Zeta  
6 Sixth Street  
Boston, MA 02163

430

00000001

Jim Eta  
7 Seventh Street  
Chicago, IL 60602

435

00000001

Matt Theta  
8 Eighth Street  
Detroit, MI 48131

440

Record #	Name	Street #	Street	City	Zip Code	Customer Info.	CR	Walk Seq.	Title	SC	OEL	Demo.
1.	Alpha, John	1	First Street	Atlanta	30015	00000001	001	WS20	A	0000001	X x Y x H or V	M
2.	Beta, Jill	2	Second Street	Boston	02163	00000003	002	WS10	A	0000001	X x Y x H or V	F
3.	Gamma, Bob	3	Third Street	Chicago	60602	00000005	003	WS21	A	0000001	X x Y x H or V	M
4.	Delta, Kim	4	Fourth Street	Detroit	48131	00000007	004	WS136	A	0000001	X x Y x H or V	F
5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	00000009	001	WS100	A	0000001	X x Y x H or V	M
6.	Zeta, Robin	6	Sixth Street	Boston	02163	00000011	002	WS72	A	0000001	X x Y x H or V	F
7.	Eta, Jim	7	Seventh Street	Chicago	60602	00000013	003	WS86	A	0000001	X x Y x H or V	M
8.	Theta, Matt	8	Eighth Street	Detroit	48131	00000015	005	WS62	A	0000001	X x Y x H or V	M

RECORD LIST

TO FIG. 5

FIG. 4

FROM FIG. 4

BINDERY SEQUENCE LIST MODULE

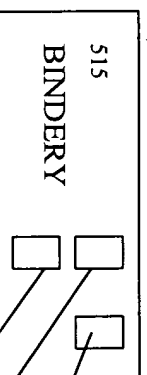
505

1. Sequence by zip code beginning with lowest zip code
2. Within each zip code, sequence by carrier route
3. Within each carrier route, sequence by walk sequence with lower walk sequence first

SEQUENCE LIST

510

Seq #	Record #	Name	Street #	Street	City	Zip Code	Customer Info.	CR	WS	Title	SC	OEL	Demo.
1.	2.	Beta, Jill	2	Second Street	Boston	02163	00000003	002	WS10	A	00000001	X x Y x H or V	F
2.	6.	Zeta, Robin	6	Sixth Street	Boston	02163	00000011	002	WS22	A	00000001	X x Y x H or V	F
3.	1.	Alpha, John	1	First Street	Atlanta	30015	00000001	001	WS20	A	00000001	X x Y x H or V	M
4.	5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	00000009	001	WS35	A	00000001	X x Y x H or V	M
5.	4.	Delta, Kim	4	Fourth Street	Detroit	48131	00000007	004	WS136	A	00000001	X x Y x H or V	F
6.	8.	Theta, Matt	8	Eighth Street	Detroit	48131	00000015	005	WS62	A	00000001	X x Y x H or V	M
7.	3.	Gamma, Bob	3	Third Street	Chicago	60602	00000005	003	WS21	A	00000001	X x Y x H or V	M
8.	7.	Eta, Jim	7	Seventh Street	Chicago	60602	00000013	003	WS86	A	00000001	X x Y x H or V	M



THICKNESS 520

WEIGHT 525

TO FIG. 6

FIG. 5

VERIFICATION DEVICE 530

FROM FIG. 5

000000003	000000004	000000011	000000013	000000001	000000002	000000009	000000010
Jill Beta 2 Second Street Boston, MA 02163	610	Robin Zeia 6 Sixth Street Boston, MA 02163	615	John Alpha 1 First Street Atlanta, GA 30015	620	Mike Epsilon 5 Fifth Street Atlanta, GA 30015	625
000000005	000000006	000000013	000000013	000000007	000000008	000000015	000000016
Bob Gamma 3 Third Street Chicago, IL 60602	630	Jim Eta 7 Seventh Street Chicago, IL 60602	635	Kim Delta 4 Fourth Street Detroit, MI 48131	640	Matt Theta 8 Eighth Street Detroit, MI 48131	645

VERIFIED SEQUENCE LIST A

Seq #	Rec #	Name	Street #	Street	City	Zip Code	CL	CR	WS	Title	SC	OEL	Wt	Thick	Bundle	Demo
1.	2.	Beta, Jill	2	Second Street	Boston	02163	000000003	002	WS10	A	00000001	XxYxHxv	1.5	.19	1	F
2.	6.	Zeia, Robin	6	Sixth Street	Boston	02163	000000011	002	WS22	A	00000001	XxYxHxv	1.5	.19	1	F
3.	1.	Alpha, John	1	First Street	Atlanta	30015	000000001	001	WS20	A	00000001	XxYxHxv	1.5	.19	1	M
4.	5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	000000009	001	WS35	A	00000001	XxYxHxv	1.5	.19	1	M
BINDER ERROR FOR SEQUENCE NO. 5																
5.	8.	Theta, Matt	8	Eighth Street	Detroit	48131	000000015	005	WS62	A	00000001	XxYxHxv	2.0	.25	1	M
6.	3.	Gamma, Bob	3	Third Street	Chicago	60602	000000005	003	WS21	A	00000001	XxYxHxv	1.5	.19	1	M
7.	7.	Eta, Jim	7	Seventh Street	Chicago	60602	000000013	003	WS86	A	00000001	XxYxHxv	1.5	.19	1	M
MIXED MAIL																
1.	4.	Delta, Kim	4	Fourth Street	Detroit	48131	000000007	004	WS136	A	00000001	XxYxHxv	1.5	.19	1	F

FROM FIG. 6

VERIFIED SEQUENCE LIST A

605

Seq #	Rec #	Name	Street #	Street	City	Zip Code	CL	CR	WS	Title	SC	OEL	Wt	Thick	Bundle	Demo.
1.	2.	Beta, Jill	2	Second Street	Boston	02163	00000003	002	WS10	A	00000001	XxYxHorV	1.5	.19	1	F
2.	6.	Zeta, Robin	6	Sixth Street	Boston	02163	00000011	002	WS22	A	00000001	XxYxHorV	1.5	.19	1	F
	1.	Alpha, John	1	First Street	Atlanta	30015	00000001	001	WS20	A	00000001	XxYxHorV	1.5	.19	1	M
	5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	00000009	001	WS35	A	00000001	XxYxHorV	1.5	.19	1	M
RANDOM ERROR FOR SEQUENCE NO. 5																
5.	8.	Theta, Matt	8	Eighth Street	Detroit	48131	00000015	005	WS62	A	00000001	XxYxHorV	2.0	.25	1	M
6.	3.	Gamma, Bob	3	Third Street	Chicago	60602	00000005	003	WS21	A	00000001	XxYxHorV	1.5	.19	1	M
7.	7.	Eta, Jim	7	Seventh Street	Chicago	60602	00000013	003	WS86	A	00000001	XxYxHorV	1.5	.19	1	M
MIXED MAIL																
1.	4.	Delta, Kim	4	Fourth Street	Detroit	48131	00000007	004	WS136	A	00000001	XxYxHorV	1.5	.19	1	F

VERIFIED SEQUENCE LIST B

710

Seq #	Rec #	Name	Street #	Street	City	Zip Code	CL	CR	WS	Title	SC	OEL	Wt	Thick	Bundle	Demo.
1.	6.	Xi, Pat	13	Fourteenth St.	Boston	02163	00000027	002	WS64	B	00000002	X'xY'xHorV	2.0	.19	1	F
2.	4.	Mu, Joe	13	Twelfth St.	Boston	02163	00000023	002	WS45	B	00000002	X'xY'xHorV	2.0	.19	1	M
	5.	Nu, Barb	13	Thirteenth St.	Atlanta	30015	00000025	003	WS10	B	00000002	X'xY'xHorV	2.0	.19	1	F
	1.	Iota, Rob	9	Ninth Street	Atlanta	30015	00000017	001	WS53	B	00000002	X'xY'xHorV	2.0	.19	1	M
5.	7.	Omicron, Deb	15	Fifteenth St.	Detroit	48131	00000029	004	WS45	B	00000002	X'xY'xHorV	2.0	.19	1	F
6.	8.	Pi, Gayle	16	Sixteenth St.	Detroit	48131	00000031	004	WS74	B	00000002	X'xY'xHorV	2.0	.19	1	F
7.	2.	Kappa, Mark	10	Tenth St.	Chicago	60602	00000019	003	WS97	B	00000002	X'xY'xHorV	2.0	.19	1	M
8.	3.	Lambda, Paul	11	Eleventh St.	Chicago	60602	00000021	004	WS6	B	00000002	X'xY'xHorV	2.0	.19	1	M

TO FIG. 8

FIG. 7



MEGED VERIFIED SEQUENCE LIST

805

Seq #	Rec #	Name	Street #	Street	City	Zip Code	CL	CR	WS	Title	SC	OEL	Wt	Thick	Bundle	Demo.
1.	2.	Beta, Jill	2	Second Street	Boston	02163	00000003	002	WS10	A	00000001	XxYxHorV	1.5	.19	1	F
2.	6.	Zeta, Robin	6	Sixth Street	Boston	02163	00000011	002	WS22	A	00000001	XxYxHorV	1.5	.19	1	F
3.	4.	Mu, Joe	13	Twelfth St.	Boston	02163	00000023	002	WS45	B	00000002	X'xY'xHorV	2.0	.19	1	M
4.	6.	Xi, Pat	13	Fourteenth St.	Boston	02163	00000027	002	WS64	B	00000002	X'xY'xHorV	2.0	.19	1	F
5.	1.	Alpha, John	1	First Street	Atlanta	30015	00000001	001	WS20	A	00000001	XxYxHorV	1.5	.19	1	M
6.	5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	00000009	001	WS35	A	00000001	XxYxHorV	1.5	.19	1	M
7.	1.	Iota, Rob	9	Ninth Street	Atlanta	30015	00000017	001	WS53	B	00000002	X'xY'xHorV	2.0	.19	1	F
8.	5.	Nu, Barb	13	Thirteenth St.	Atlanta	30015	00000025	003	WS10	B	00000002	X'xY'xHorV	2.0	.19	1	F
9.	7.	Omicron, Deb	15	Fifteenth St.	Detroit	48131	00000029	004	WS45	B	00000002	X'xY'xHorV	2.0	.19	1	F
10.	8.	Pi, Gayle	16	Sixteenth St.	Detroit	48131	00000031	004	WS74	B	00000002	X'xY'xHorV	2.0	.19	1	F
11.	8.	Theta, Matt	8	Eighth Street	Detroit	48131	00000015	005	WS62	A	00000001	XxYxHorV	2.0	.25	1	M
13.	3.	Gamma, Bob	3	Third Street	Chicago	60602	00000005	003	WS21	A	00000001	XxYxHorV	1.5	.19	1	M
13.	7.	Eta, Jim	7	Seventh Street	Chicago	60602	00000013	003	WS86	A	00000001	XxYxHorV	1.5	.19	1	M
13.	2.	Kappa, Mark	10	Tenth St.	Chicago	60602	00000019	003	WS97	B	00000002	X'xY'xHorV	2.0	.19	1	M
15.	3.	Lambda, Paul	11	Eleventh St.	Chicago	60602	00000021	004	WS6	B	00000002	X'xY'xHorV	2.0	.19	1	M
...																
MIXED MAIL																
1.	4.	Delta, Kim	4	Fourth Street	Detroit	48131	00000007	004	WS136	A	00000001	XxYxHorV	1.5	.19	1	F

TO FIG. 9

FIG. 8

FIG. 8 is a diagram of a sequence of VSL boxes. The sequence starts with VSL A 605, followed by VSL B 710, and then a series of boxes represented by ellipses, ending with VSL n. Arrows indicate a flow from left to right between the boxes.



FROM FIG. 8

DETERMINE OPTIMIZED MAIL RATE

905

5-Digit Zip Code 1

CRI1

CRI1

CRI1

...

CRT1

IF CRT1  $\geq$  10, THEN ASSIGN ECR MAIL RATE TO EACH RECORD  
IF CRT1  $<$  10, THEN ASSIGN TO A 5-DIGIT TOTAL

CR2

CR2

...

CRn

5-DIGIT TOTAL

IF 5-DIGIT TOTAL  $\geq$  10, THEN ASSIGN 5-DIGIT MAIL RATE TO  
EACH RECORD

3-DIGIT TOTAL

IF 5-DIGIT TOTAL  $<$  10, THEN ASSIGN TO 3-DIGIT TOTAL

IF 3-DIGIT TOTAL  $\geq$  10, THEN ASSIGN 3-DIGIT MAIL RATE  
TO EACH RECORD

IF 3-DIGIT TOAL  $<$  10, THEN ASSIGN TO MIXED MAIL TOTAL

MIXED MAIL TOTAL

ASSIGN MIXED MAIL RATE TO EACH RECORD

5-Digit Zip Code 2

...

TO FIG. 10

FIG. 9

FROM FIG. 9

OPTIMIZED MERGED VERIFIED SEQUENCE LIST

1005

Seq #	Rec #	Name	Street #	Street	City	Zip Code	CL	CR	WS	Title	SC	OEL	Wt	Thick	Bundle	Demo	MR
1.	2.	Beta, Jill	2	Second Street	Boston	02163	00000003	002	WS10	A	00000001	XxYxHorV	1.5	.19	1	F	ECR
2.	6.	Zeta, Robin	6	Sixth Street	Boston	02163	00000011	002	WS22	A	00000001	XxYxHorV	1.5	.19	1	F	ECR
3.	4.	Mu, Joe	13	Twelfth St.	Boston	02163	00000023	002	WS45	B	00000002	XxYxHorV	2.0	.19	1	M	ECR
4.	6.	Xi, Pat	13	Fourteenth St.	Boston	02163	00000027	002	WS64	B	00000002	XxYxHorV	2.0	.19	1	F	SD
5.	1.	Alpha, John	1	First Street	Atlanta	30015	00000001	001	WS20	A	00000001	XxYxHorV	1.5	.19	1	M	3D
6.	5.	Epsilon, Mike	5	Fifth Street	Atlanta	30015	00000009	001	WS35	A	00000001	XxYxHorV	1.5	.19	1	M	ECR
7.	1.	Iota, Rob	9	Ninth Street	Atlanta	30015	00000017	001	WS53	B	00000002	XxYxHorV	2.0	.19	1	M	ECR
8.	5.	Nu, Barb	13	Thirteenth St.	Atlanta	30015	00000025	003	WS10	B	00000002	XxYxHorV	2.0	.19	1	F	SD
9.	7.	Omicron, Deb	15	Fifteenth St.	Detroit	48131	00000029	004	WS45	B	00000002	XxYxHorV	2.0	.19	1	F	SD
10.	8.	Pi, Gayle	16	Sixteenth St.	Detroit	48131	00000031	004	WS74	B	00000002	XxYxHorV	2.0	.19	1	F	SD
11.	8.	Theta, Matt	8	Eighth Street	Detroit	48131	00000015	005	WS62	A	00000001	XxYxHorV	2.0	.25	1	M	SD
13.	3.	Gamma, Bob	3	Third Street	Chicago	60602	00000005	003	WS21	A	00000001	XxYxHorV	1.5	.19	1	M	3D
13.	7.	Eta, Jim	7	Seventh Street	Chicago	60602	00000013	003	WS86	A	00000001	XxYxHorV	1.5	.19	1	M	ECR
13.	2.	Kappa, Mark	10	Tenth St.	Chicago	60602	00000019	003	WS97	B	00000002	XxYxHorV	2.0	.19	1	M	ECR
15.	3.	Lambda, Paul	11	Eleventh St.	Chicago	60602	00000021	004	WS6	B	00000002	XxYxHorV	2.0	.19	1	M	ECR
...																	
MIXED MAIL																	
1.	4.	Delta, Kim	4	Fourth Street	Detroit	48131	00000007	004	WS136	A	00000001	XxYxHorV	1.5	.19	1	F	REG.

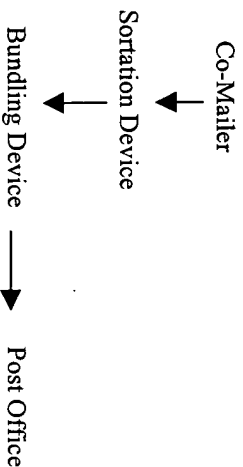


FIG. 10

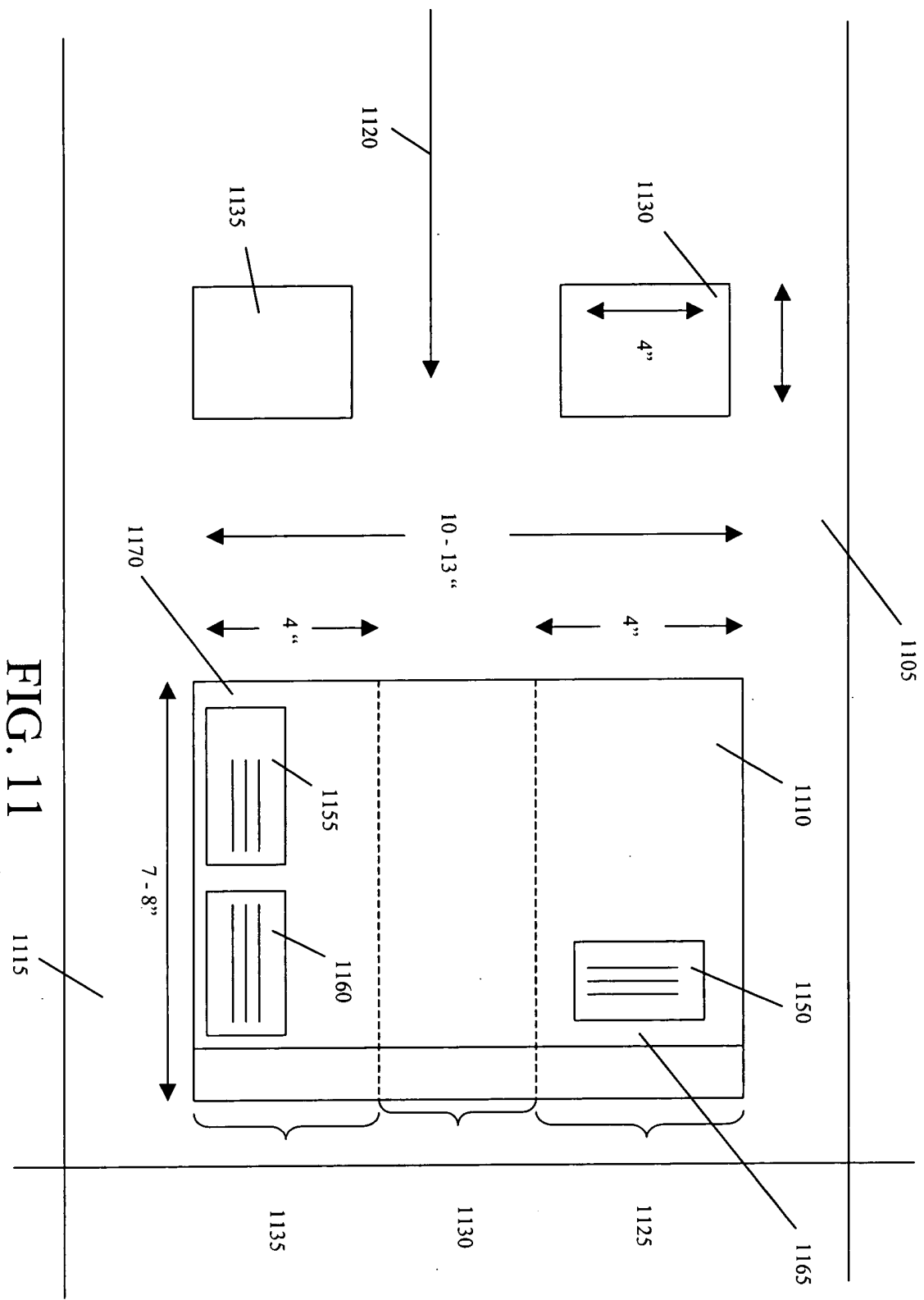


FIG. 11

FIG. 11 is a schematic diagram of a rectangular assembly.

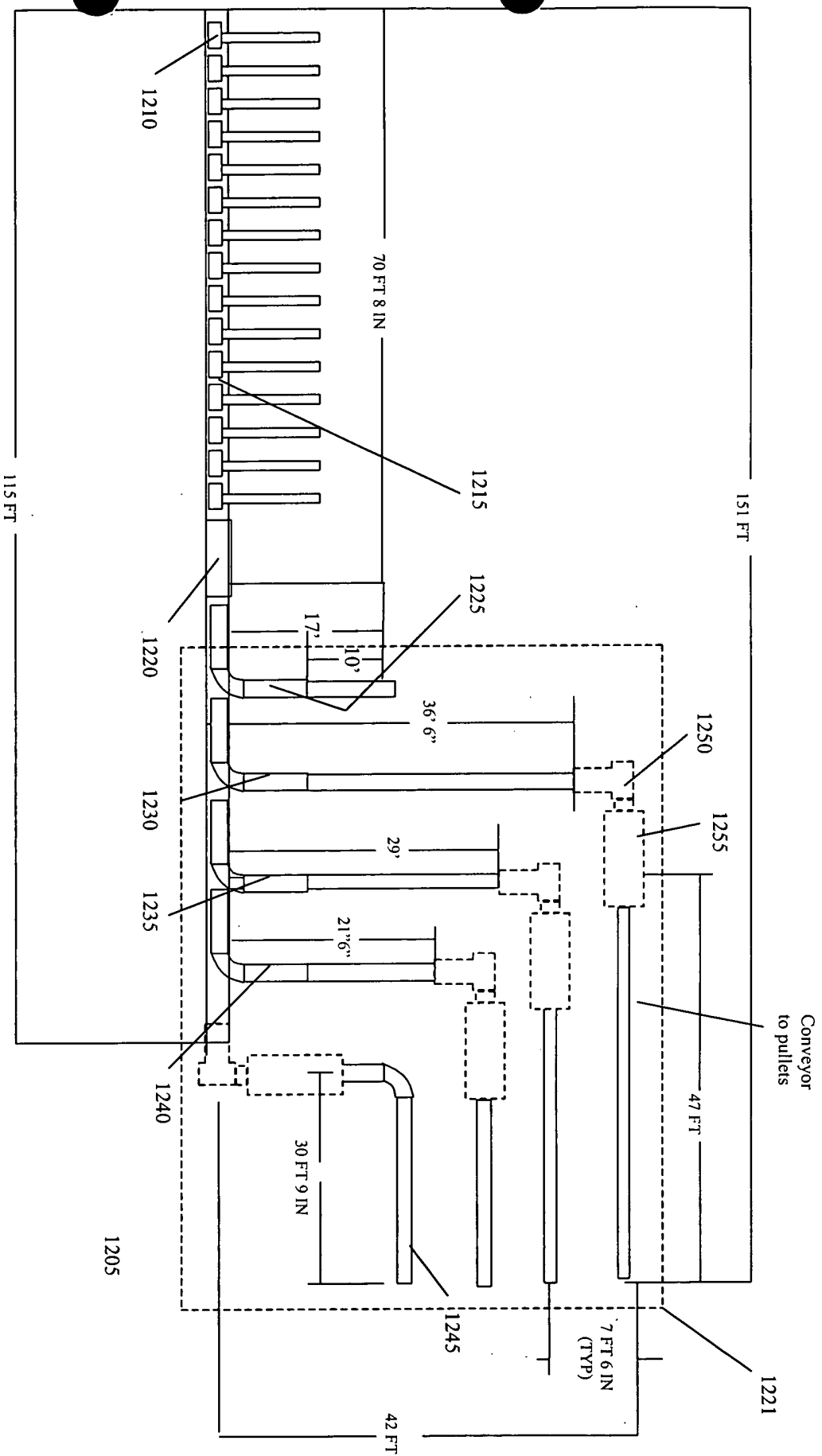


FIG. 12

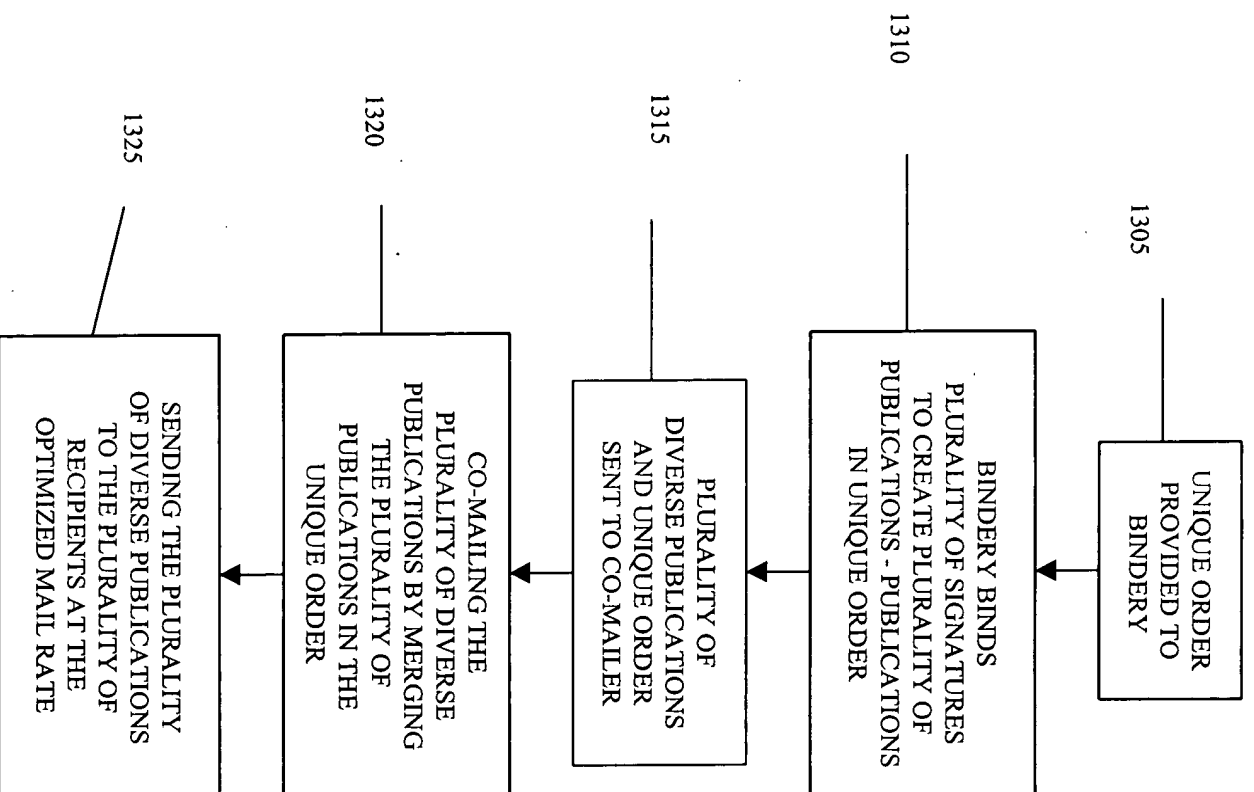


FIG. 13

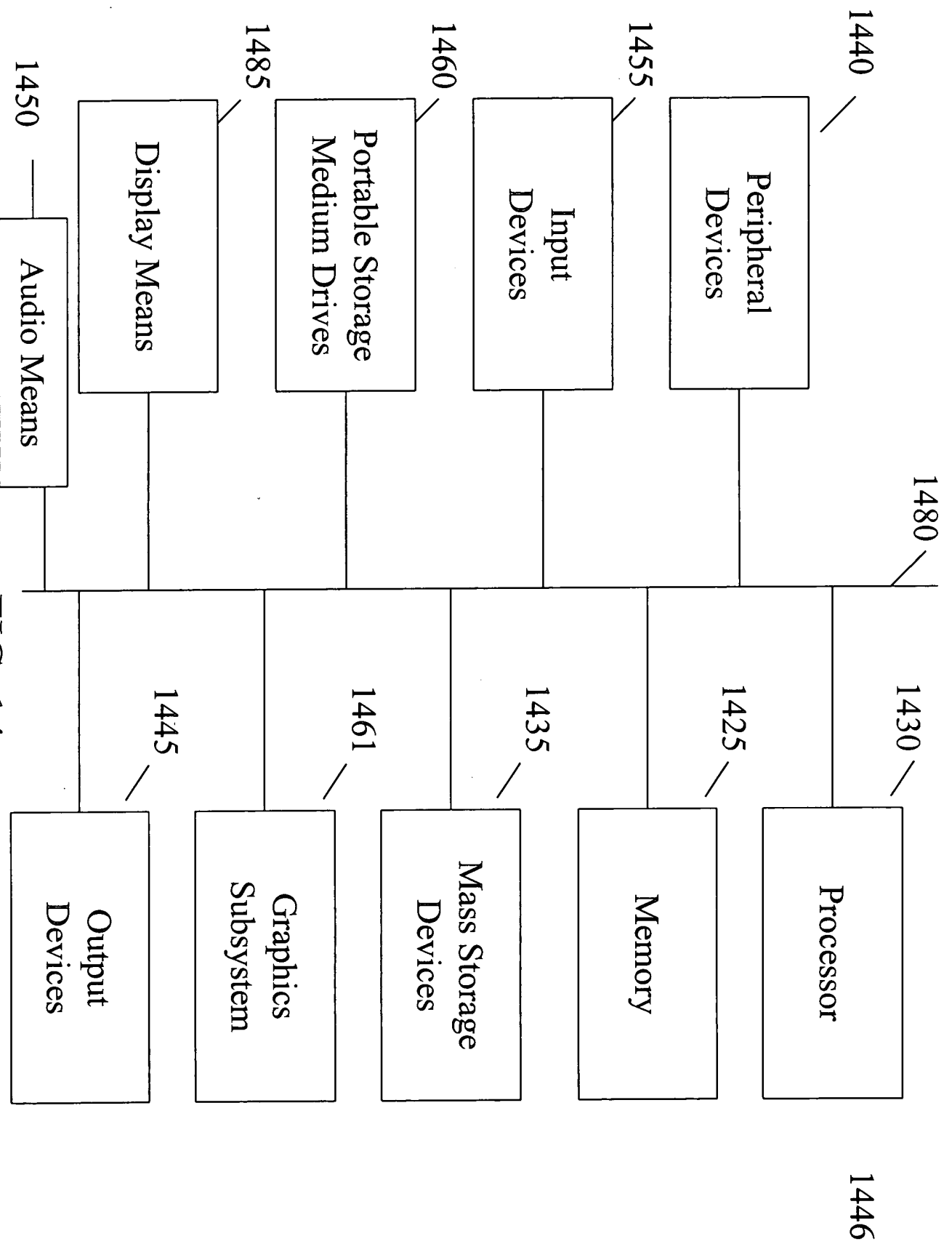


FIG. 14

FIG. 14 is a block diagram of a computer system architecture.